

Z-JB

universal pressure transmitter - Ex

CRESSTO

- **intrinsic safety**
- **small dimensions**
- **simple application**
- **universal usage**
- **wide assortment**
- **favourable price**



These transmitters can be used both in the atmosphere with occurrence of flammable dust and methane, that is especially in mines, and also in gas manufacture or chemical plants. They are approved by an accredited test laboratory in versions I M1Ex ia I, or 1G Ex ia IIB T4.

The transmitters series Z are designated for universal use. By means of them, it is possible to measure both overpressure and underpressure in liquid and also gas media which are chemically non-aggressive. The absolute version enables pressure measuring against vacuum and thus includes also measuring of barometric air pressure. Differential transmitters are designated only for gas non-aggressive media.

Transmitters of this series find wide use in the whole range of applications in industrial automation, energy measuring, in mines. Because of their accessibility and small dimensions, they are popular in device constructions, for measuring in laboratories, etc. The transmitter casing is made from brass with nickel surface finish. They can be supplied with the connecting thread M12x1,5, G1/4", M20x1,5 or G1/2". types of piezoelectric sensors are used for pressure reading by this series of transmitters – silicon or ceramic.- From the point of view of pressure ranges, silicon membranes are used for lower pressures and ceramic for higher ones. Silicon sensors do not have, contrary to the ceramic ones, the measuring membrane galvanically separated from the power supply, but it is possible to achieve higher pressure overload capacity. Ceramic sensors are suitable only for relative and absolute pressure measuring. With transmitters with a silicon membrane, the measured media is in contact with these materials: nickel coated brass, silicon, Viton, silicone rubber, Polyetherimid. For the version with a ceramic membrane, they are: nickel coated brass, corundum

ceramics, Viton.

Modern elements, surface mounting technology, etc. are used in the transmitter construction. The casing material is not connected electrically with the system, but it is connected to the earthing pin of the connector. The electronics is passivated by a double layer of varnish. Electric connection is made by means of a sealed arrested connector (ISO 4400/6952 – DIN43650) with a cable bushing size PG9, which enables connection by a cable with the diameter 6÷9mm.

Electric signal from the sensor, which is proportional to the applied pressure, is strengthened, filtered, calibrated and transferred to the required output quantity. Pressure transmitters series Z are standardly produced with the current output 4÷20 mA in the connection twin conductor or with a special range 0,2÷1mA in the connection with triple conductor. For the transmitter power supply, it is possible to use DC voltage in the range 10÷22V. Change of the supply voltage in this range does not have a practical influence on the measuring accuracy. The transmitter calibration is made by means of fixed resistors, for possible fine setting of the end points of the transfer characteristic, two trimmers are accessible after unscrewing the connector base, by means of which it is possible to make corrections in the range of ca. 2% of the nominal range. The trimmer for adjusting the beginning of the range (zero) is marked red.

We recommend using standard pressure ranges, see the second page of this sheet, but in agreement, it is possible to adjust any range in the range of the stated pressures and outputs, including both symmetrical and asymmetrical combinations underpressure overpressure.

Technical parameters:

| | |
|--|--|
| Nominal pressure range | ± 2,5kPa to 40MPa |
| Overpressure to 40 kPa from 60 kPa to 40MPa | 100 kPa 200% nominal pressure range max. 60MPa |
| Error | max. 1% (0.5%) |
| Zero temperature error | typ. 0,2 % max. 0,3 %/10°C |
| Span temperature error | typ. 0,2 % max. 0,3 %/10°C |
| Compensated temp. range | 0 ÷ 70°C |
| Operating temp. range | -15 ÷ +60°C |
| Storage temperature | -25 ÷ +100°C |
| Supply voltage | 10 ÷ 22V dc |
| Supplu current – output H | < 4mA |
| Output | 4 ÷ 20mA twowire 0,2 ÷ 1mA threewire |
| Operating position | arbitrary |
| Protection | IP54 |
| Voltage strength | min. 1000V dc. |
| Weight | ca 270g |
| Common-mode pressure for differential ver. | max. 1Mpa |

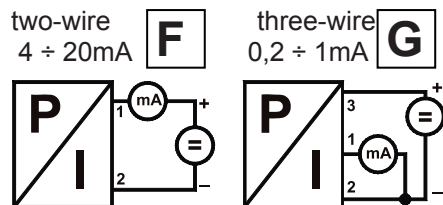
CE EMC – accords to ČSN EN 61326-1

At the customer's wish it is possible to secure a metrological verification of the transmitters at an accredited Calibration Service Centre.

Operating instructions:

- Before the transmitter is connected to the pressure circuit, it is necessary to check whether the measured pressure corresponds with the nominal range of the transmitter. Even a short-term overload over the maximum allowed overpressure can cause destruction of the measuring membrane. With the differential transmitter, the user has to secure that the transmitter is not one-sidedly overloaded by higher pressure than the allowed non-destructive pressure for the nominal range.
- Especially when a silicon membrane is used, it is necessary to verify the resistance of materials, see the front page of this sheet. In case of unclearness, contact the producer.
- We recommend using "O" ring. With sealing into the thread (Teflon, tow), it is necessary to pay higher attention because screwing into closed volume of liquid can cause increase of the pressure and thus destruction of the membrane!

Electrical connection:



Pin assignments: valid for connector DIN 43650

| | two-wire 4 ÷ 20mA | three-wire 0,2 ÷ 1mA |
|------------------|----------------------|-------------------------|
| + supply voltage | 1 | 3 |
| - supply voltage | 2 | 2 |
| output | | 1 |
| shielding | ⊥ | ⊥ |

Legend:

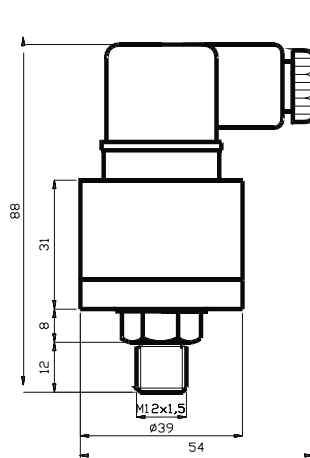
TM G 6 1 7 Z 3 F JB

| | | |
|---------------------------------------|---------|----|
| pressure measurement | | |
| relative overpressure | | |
| absolute | A | |
| differential | D | |
| relative underpressure | V | |
| exponent of pressure range | | |
| 10 ³ Pa (units kPa) | | 3 |
| 10 ⁴ Pa (tens kPa) | | 4 |
| 10 ⁵ Pa (hundreds kPa) | | 5 |
| 10 ⁶ Pa (units MPa) | | 6 |
| 10 ⁷ Pa (tens MPa) | | 7 |
| multiplicand of pressure range | | |
| 1,0 | | 1 |
| 1,6 | | 2 |
| 2,5 | | 3 |
| 4,0 | | 4 |
| 6,0 | | 6 |
| membrane material | | |
| ceramic (25kPa to 40MPa) | | 7 |
| silicon (2,5kPa to 600kPa) | | 8 |
| case material | | |
| brass M12x1,5, G1/4", M20x1,5, G1/2" | | Z |
| electrical connection | | |
| connector DIN 43650 | | 3 |
| electrical output | | |
| current | 4÷20mA | F |
| current | 0,2÷1mA | G |
| additional signs | | JB |

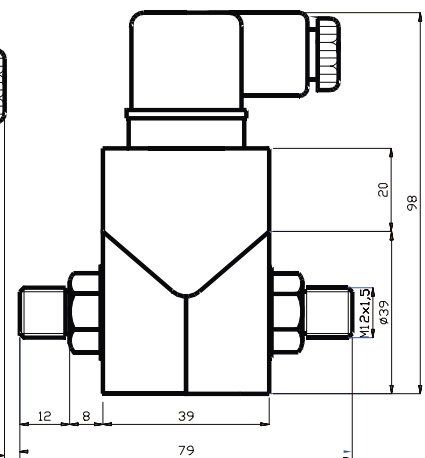
Basic version: relative overpressure, case material - duralumin with thread M12x1,5, conector according to DIN 43650, output 4÷20mA.

Dimensions:

standard case Z



differential



Service:

The device does not require any maintenance during operation. Possible repairs are made by the producer. When the use of the device is finished, it becomes electric waste. The user is obliged to secure the device disposal according to the regulations valid during the time of disposal, preferably by handing it over to a person entitled to this activity.